Liebert
Keeping Business In Business

DUAL INPUT POWER DISTRIBUTION

MICRO SMARTSWITCH

USER MANUAL

200 VAC to 240 VAC

50/60 Hz

24 Amps

EMERSON
Network Power

General Description

The Liebert Micro SmartSwitch (MSS) is a single Phase Dual Input rack mountable Power Distribution Unit (PDU) with a built in Automatic Transfer Switch. When Input A falls below 168 VAC and Input B is valid, the output is automatically transferred to Input B. The output is transferred back to Input A when Input A is valid and rises above 178 VAC. This high speed transfer rate ensures that the transfer is transparent to the sensitive equipment.

The two sources are not required to be in phase. This is an effective solution that builds in redundancy and increases the AC power availability of connected equipment. If the dual input power is fed through two independent AC sources, then the system availability is increased and the dual input advantages are fully used.

The Micro SmartSwitch provides 12 receptacles that distribute redundant AC power and may be rack mounted. There are four groups of three IEC-320 (10A) receptacles, where each group is backed up by a 10A magnetic circuit breaker. The MSS has two attached line cords that are terminated with NEMA L6-30 plugs with a 20A fuse for each. The total load for the MSS cannot exceed 24A of AC load at 200-240 VAC. Also the load for each of the four groups cannot exceed 10A or the internal breaker may trip or the fuse will blow. The load must be balanced among the four segments such that the total current draw per section does not exceed 10A and a total of 24A for all the four segments of the MSS. This product provides line-to-line surge protection of 500 Joules.

Glossary of Symbols

Risk of Electrical Shock

Indicates Caution - followed by important instructions

Bonded to Ground

AC Voltage

On

Off

No user servicable parts inside

About This Device

This guide serves as an outline to assist Qualified personnel with the installation of the Liebert Micro SmartSwitch. The input voltage for this Micro SmartSwitch unit is 200VAC to 240VAC.

This Micro SmartSwitch includes the following features:

- Mounts in 1U of rack space
- Provides 12 receptacles on 4 circuit breakers
- Protects against electrical line surges and spikes

This Micro SmartSwitch is UL and c-UL listed as Information Technology Equipment.

WARNING: There is a risk of personal injury from electrical shock and hazardous energy levels. The installation of options and routine maintenance and service of the product must be performed by individuals who are knowledgeable about the procedures, precautions, and hazards associated with AC power products (trained service technician).

To reduce the risk of electrical shock and/or equipment damage when installing or servicing the Micro SmartSwitch:

- The Micro SmartSwitch must be disconnected from the product and unplugged from the AC electrical outlet before servicing or repairing product.
- Do not overload the output of the Micro SmartSwitch. The total connected load should not exceed rated input power.
- Do not exceed the leakage current limit for the Micro SmartSwitch in your system. See the "Earth Leakage Current" section later in this document for limits.

Earth Leakage Current

To reduce the risk of electrical shock due to high leakage current, a reliable grounded (earth) connection is essential before connecting Micro SmartSwitch to AC power. Observe the following limits when connecting the product to AC power distribution devices.

For products that have attached AC power cords directly connected to the building power, the total combined leakage current should not exceed 5 percent of the rated input current for the device.

For products that have detachable AC power cords, the total combined leakage current should not exceed 3.5mA.

Voltage Selection

On connected equipment that have voltage select switches, make sure that the switch is set for the type of voltage you use (208/240 VAC).

IMPORTANT SAFETY INSTRUCTIONS

SAVE THESE INSTRUCTIONS.

This manual contains important instructions that should be closely followed during installation and maintenance of this product.

This product is designed for Commercial/Industrial use only. It is not intended for use with life support and other U. S. FDA designated “critical” devices. Maximum load must not exceed that shown on the rating label. See Limited Warranty.

WARNING: Lethal voltages may be present within this unit even when it is apparently not operating. Observe all cautions and warnings in this manual. Failure to do so MAY result in serious injury.

This equipment or Micro SmartSwitch is designed for use on a properly grounded (earthed), 208/240 VAC, 50Hz or 60Hz supply.

ELECTROMAGNETIC COMPATIBILITY- The Micro SmartSwitch complies with the limits for a CLASS B digital device, pursuant to part 15 of FCC rules. These limits provide reasonable protection against harmful interference. If this device is not installed and used in accordance with the instruction manual, it may cause harmful interference to radio communications. Not operating this device in accordance with these instructions may cause harmful interference, which the user must correct at their own expense.

Operate the Micro SmartSwitch in an indoor environment only in an ambient temperature range of 0°C to 50°C (32°F to +122°F). Install it in a clean environment, free from conductive contaminates, moisture, flammable liquids, gasses, or corrosive substances.

Turn the Micro SmartSwitch off and isolate it from other equipment before cleaning. Use a soft cloth, never liquid or aerosol cleaners.

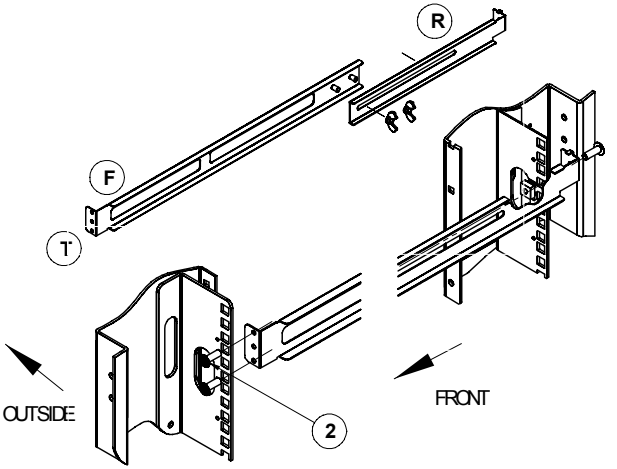
Keep the vents free from dust accumulation that could restrict airflow.

Never block or insert any object into the ventilation holes or other openings.

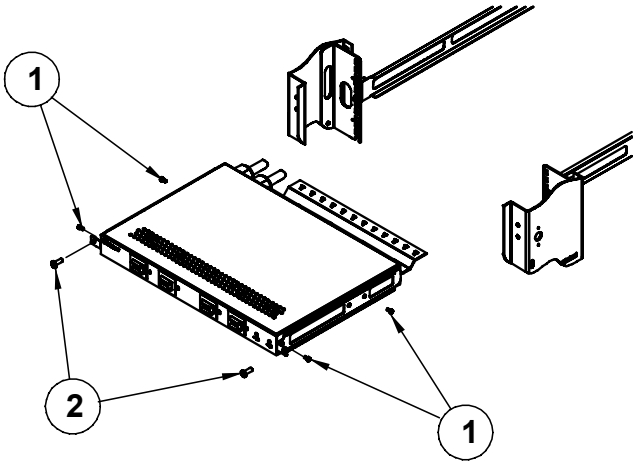
Installation

Place rear rail [R] over the studs in the front rail [F]. Tighten nuts finger tight. The mounting tab [T] will be facing out, so the holes align with the rack sides. Adjust length of rail assembly to fit inside rack. Tighten either the wing nuts or hex nuts.

Insert cage nut (one on each side) in rack. Set hooks at rear of rail over holes in rack. Use screw [2] (one on each side) to attach rails to rear of rack through cage nut. Use screw [2] (two on each side) to attach rails to front of rack.

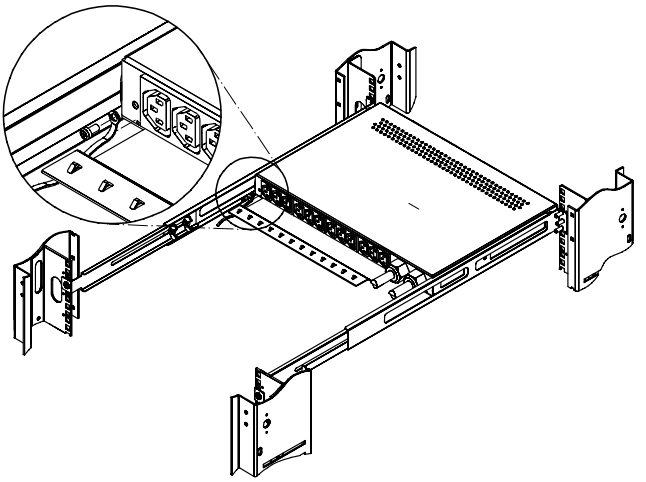


Use screws [1] (two on each side) to attach brackets to side of unit. Slide unit into rails and secure by using screws [2] (one on each side) to attach the unit.



Ground Bonding Screw

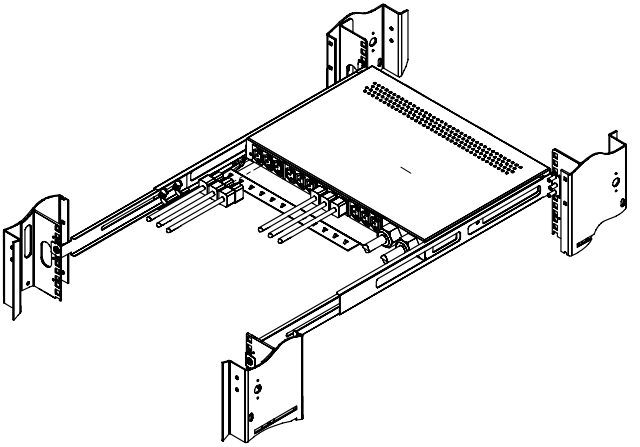
A ground bonding screw is provided on the rear of the unit. This feature is provided as an attachment point for conductors the rack may contain for the purpose of functional grounding or bonding of ungrounded metal parts. Ground cables are not included.



Note: The Ground Bonding wire must be a minimum of 10 AWG to maintain proper grounding.

Connecting Devices

Make sure that the devices connected do not exceed the unit capabilities. This Dual Input Micro SmartSwitch features 3 output receptacles per circuit breaker, for a total of 12 receptacles. This model is rated at 10A per breaker.



Each block of 3 receptacles has a maximum output rating of 10A. If the total connected load exceeds 10A, the circuit breaker will trip and interrupt power to all loads attached to that block of receptacles.

The maximum output of this Micro SmartSwitch is 24A. If the total load connected to all load segments exceed 24A, the circuit breaker at the wall could trip and interrupt power to all loads.

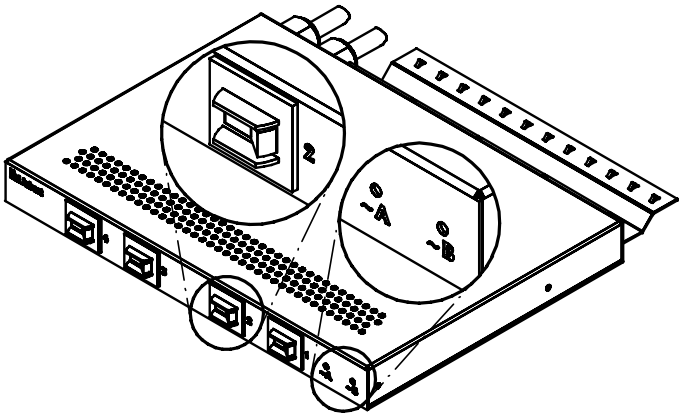
About the Circuit Breakers

Input power can be verified by the illumination of the two LEDs on the front of the unit, marked ~A and ~B.

Output power can be verified by the illumination of the circuit breaker, when in the On position

If connected device is not powered, verify the respective circuit breaker is On and illuminated.

If power is still not restored, see “Contacts” section later in this document.



Configurations

The Micro SmartSwitch can be configured to fit several power distribution requirements.

Configuration 1

This application shows use of the Micro SmartSwitch in conjunction with single-line cord devices .

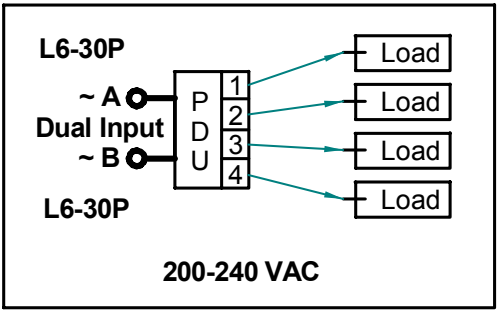
Note: Each segment can accommodate a maximum current draw of 10A, so the individual load connected to it must not exceed 10A or the circuit breaker will trip.

~A: AC Input A

~B: AC Input B

1,2,3,4: Load segments on the Micro SmartSwitch

Load: Any server, storage, or other equipment connected to the Micro SmartSwitch



Configuration 2

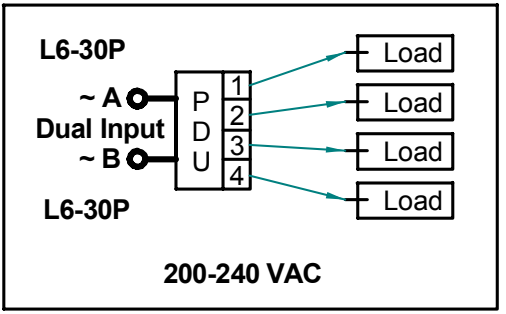
This configuration shows the use of the Micro SmartSwitch with 3-line cord devices. The figure below shows how three Micro SmartSwitchs can be used to connect with up to four 3-line cord devices.

Note: Each segment can accommodate a maximum current draw of 10A, so the individual load connected to it must not exceed 10A or the circuit breaker will trip.

~A: AC Input A

~B: AC Input B

Load: Any server, storage, or other equipment connected to the Micro SmartSwitch



Configuration 3

This configuration shows the use of a Micro SmartSwitch with 2-line cord devices. In this configuration, a server is connected to each of the four segments of the Micro SmartSwitch.

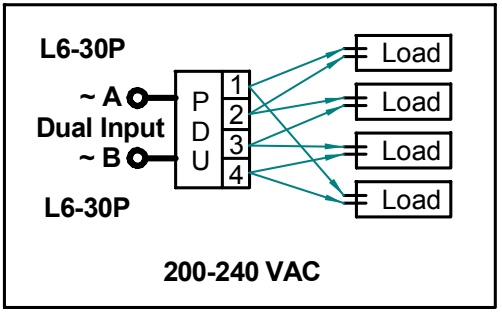
Note: Each segment can accommodate a maximum current draw of 10A, so the individual load connected to it must not exceed 10A or the circuit breaker will trip.

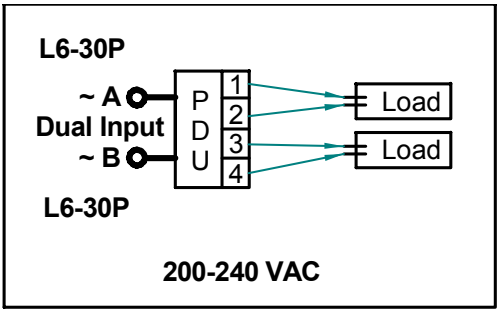
~A: AC Input A

~B: AC Input B

1,2,3,4: Load segments on the Micro SmartSwitch

Load: Any server, storage, or other equipment connected to the Micro SmartSwitch





Configuration 4

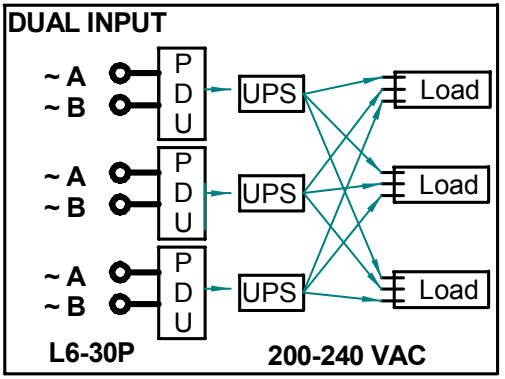
If your facility does not have a centralized Uninterruptible Power System, then the following configuration will provide maximum redundancy in a rack environment. The diagram below shows how to use three Micro SmartSwitchs, each connected to a UPS and a server.

Note: Each segment can accommodate a maximum current draw of 10A, so the individual load connected to it must not exceed 10A or the circuit breaker will trip.

~A: AC Input A

~B: AC Input B

Load: Any server, storage, or other equipment connected to the Micro SmartSwitch



Liebert Micro SmartSwitch Specifications	
Liebert Model Name	Micro SmartSwitch
Part Number	MSS30A-240
Unit Dimensions (H x W x D) in	1.72 x 17.00 x 15.25 in
(mm)	(43.7mm x 432mm x 387mm)
Unit Weight: lbs.(kg)	20.0 lbs.(9.7kg)
Shipping Weight: lbs.(kg)	32.0 lbs.(14.55kg)
LED Indictors	Input A (Primary) / Input B (Secondary)
Nominal Input Voltage Range	200 – 240VAC
On-Line Voltage Range	180 – 262VAC
Input Plug	(2) Attached x L6-30 Plugs
Input Frequency	50/60Hz
Input Surge Rating	500J
Output Connectors	(12) x IEC-320-C13
Output Circuit Breaker Protection Rating	(4) x 10A
Output Power (VA) Rating	4320
Maximum Output Current	24A
Transfer Time	<18ms
Environmental	
Operating Temperature	0°C to 50°C (32°F to 122°F)
Storage Temperature	-30°C to 60°C (-22°F to 140°F)
Relative Humidity	10 % to 80 %, non-condensing
Operating Altitude	0 to 10,000 feet above sea level
Safety and Agency	
Safety Markings	UL, c-UL
Safety Certifications	UL1950
EMC Markings	FCC
Emissions	FCC Class A,
Immunity	ANSI C62.41 Cat B (formerly IEEE 587)

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Micro Smart Switch

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The Company Behind the Products

With over a million installations around the globe, Liebert is the world leader in computer protection systems. Since its founding in 1965, Liebert has developed a complete range of support and protection systems for sensitive electronics:

- Environmental systems—close-control air conditioning from 1 to 60 tons
- Power conditioning and UPS with power ranges from 300 VA to more than 1000 kVA
- Integrated systems that provide both environmental and power protection in a single, flexible package
- Monitoring and control—from systems of any size or location, on-site or remote
- Service and support through more than 100 service centers around the world and a 24/7 Customer Response Center

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